

NOVACAM



## PRESS RELEASE

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### FOR IMMEDIATE RELEASE

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## Non-contact 3D metrology systems for chambers and barrels – proven in the field, new to the Shot Show

Novacam Technologies Inc. is pleased to introduce our **TUBEINSPECT™** and **BOREINSPECT™** 3D metrology systems to barrel manufacturers at the Shot Show Supplier Showcase 2022. NOVACAM non-contact high-precision systems bring exceptional 3D inspection capabilities right to the plant floor: they enable full automation of measurement and analysis of barrel inside diameter (ID) geometry, including rifling parameters, straightness, twist rate, chamber geometry and much more. Designed and manufactured by Novacam, the systems are deployed in facilities around the world.

### Plant-floor ready, fast, and versatile systems

Thanks to the combination of low-coherence interferometry technology and a fiber-based and modular system design, the TUBEINSPECT and BOREINSPECT systems are plant-floor ready. The systems measure with **small-diameter fiber-based optical probes** that easily enter barrel and chamber IDs. Scanning surfaces in a point-by-point manner, the probes acquire **up to 100,000 3D topographical points per second** to create a high-precision 3D point cloud for subsequent analysis.

The TUBEINSPECT and BOREINSPECT systems may be **easily integrated** with robots, gantries, and various high-precision stages. Their optical probes are rugged, and measurements are **not affected by ambient light**.

### Speed and precision combined

The optical detector common to the TUBEINSPECT and BOREINSPECT systems is Novacam MICROCAM-3D/4D interferometer, a product of over 2 decades of advanced technological research. As such, the systems offer the combination of high speed of acquisition, micron-level precision, high sensitivity, and the ability to measure high-aspect-ratio features such as cross-holes and undercuts. All in tight spaces such as inside tubes, bores, cylinders and barrels.

3D point cloud of rifle barrel ID

Automated ID quality reporting

Light intensity image

Height image

Defect measurement

The TUBEINSPECT and BOREINSPECT systems provide high-precision 3D point clouds for geometry analysis, as well as light intensity and height images, which facilitate defect identification and measurement. Reporting is easily customized and automated.

The resulting high-precision 3D point clouds provide an excellent basis for subsequent automated 3D GD&T analysis.

***“The TUBEINSPECT and BOREINSPECT provide CMM performance but at faster speed, allowing for quick and efficient non-contact metrology of barrels. This allows manufacturers to better understand, control and improve their manufacturing processes in line with Industry 4.0.”***, says Miljenko Lucic, Novacam Vice-President.  
***“Ultimately, manufacturers reduce scrap and lower their production costs.”***

### **3D Analysis – powerful and automated**

Industry-standard InnovMetric PolyWorks® Inspector metrology software PolyWorks, offered as an option with NOVACAM systems, provides a rich set of tools for both interactive and automated analysis and reporting. These include pass-fail reports based on user-set nominal and tolerance values. To further extend PolyWorks capabilities, Novacam has developed and offers a NOVACAM Barrel Analysis PolyWorks Package. This package fully automates

- analysis of rifling measurements, such as land and groove widths at various depths, the twist rate, barrel straightness, etc.
- analysis of chamber measurements.

### **Minimizing operator interaction**

The systems provide full support of automation of the inspection process so that there is no need for operator interaction after the start of the process. To automate repetitive tasks, users configure Scan Definitions that comprise measurement sequences and subsequent reporting. Pre-defined Scan Definitions may be invoked interactively or programmatically. In addition, an application programming interface (API) is available for system integrators and OEMs to accommodate a wide variety of online and offline applications.

### **What sizes of barrels?**

NOVACAM fiber-based probes are available for small caliber barrels (ID > .172 in / 4mm) and medium and large caliber barrels (up to 90mm) and can scan barrels up to 40 inches (1,000mm) long. Custom size probes are built on request.

### **Bonus measurements**

While both the BOREINSPECT and TUBEINSPECT systems measure bore IDs, the TUBEINSPECT system can also measure barrel outside diameters (ODs). With the same probe and setup, as needed.

In addition to 3D geometry, both the BOREINSPECT and TUBEINSPECT systems can also measure ID roughness and defects with the same systems and without swapping probes.

### **Value proposition**

The value proposition of NOVACAM BOREINSPECT and TUBEINSPECT systems is without equal. With micron measurement precision, plant-floor deployment versatility, and complete automation support, the systems let manufacturers expand their range of quantifiable parameters while decreasing the inspection cycle time and operator involvement. Moreover, exported measurement data may be integrated with statistical process control (SPC) in order to monitor production and gain process insight that leads to process improvement. Finally, optimized processes result in better product quality, reduced scrap, and realization of cost savings.

Come visit Novacam at booth #51108 at Shot Show Supplier Showcase on Jan 17&18, 2022.

## **About Novacam**

Novacam Technologies Inc. designs and manufactures non-contact 3D metrology systems for defense and other high-precision sectors, including aerospace, automotive, power, semiconductor, medical instruments, glass, and biomedical. Novacam TUBEINSPECT and BOREINSPECT systems measure barrel and chamber IDs automatically, with micron precision, right on the plant floor. 3D measurements of rifling, straightness, a range of other 3D GD&T parameters, roughness, as well as defects. Novacam systems are suitable for both industrial and scientific applications and are available worldwide.

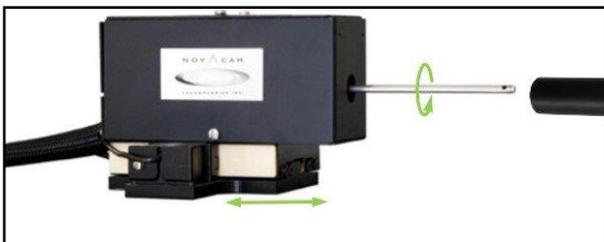
## More info for media

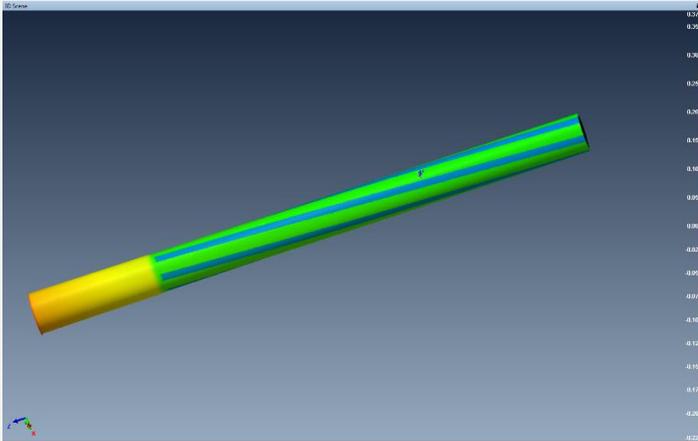
- Further resources on this topic (<https://www.novacam.com/barrel-inspection-and-3d-measurement/>)
- High-quality images will be provided upon request.

### TUBEINSPECT 3D metrology system

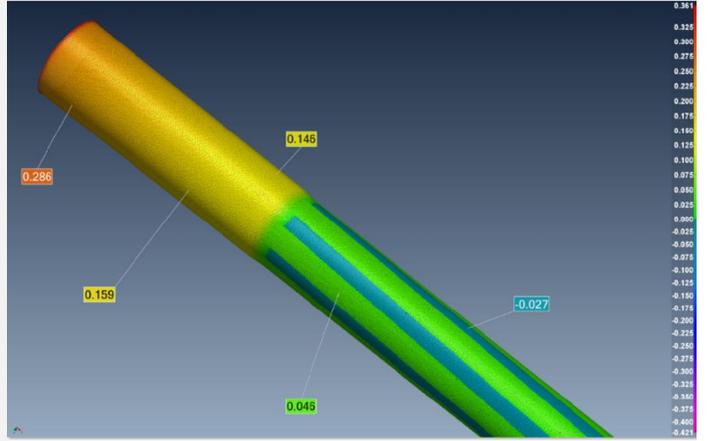


### BOREINSPECT 3D metrology system

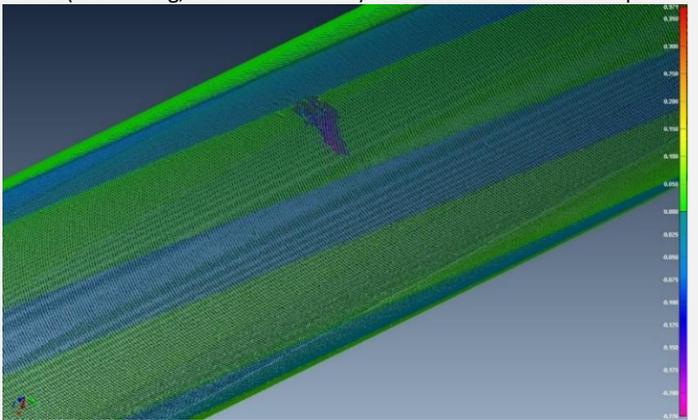




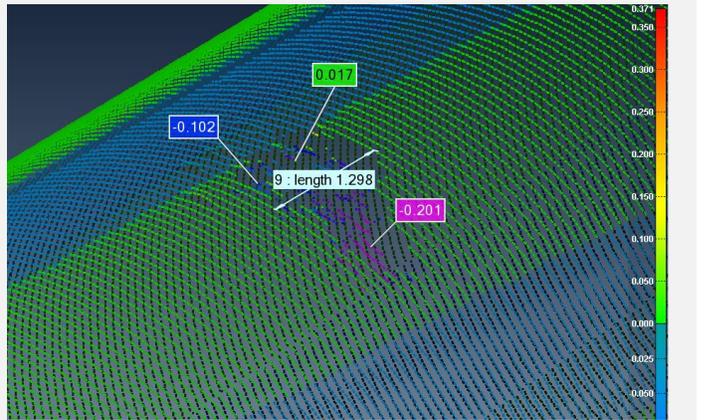
Fully mapped ID surface of the first 9 cm of an 18", .22 caliber rifle barrel (46 cm long, 5.6 mm diameter) shown as 3D deviation map.



Zooming into the 3D model, users can query surface measurements.



Progressive zooming in reveals surface defects.



Interactive measurement of a discovered defect.

Chamber 3D geometry analysis:

